REMARKS

This application has been reviewed in light of the Office Action dated January 24, 2007. Claims 2-10, 13-15, 18, 20-28, 31-33, 36, and 41-46 are presented for examination. Claims 1, 11, 19, 29, and 37-40 have been canceled, without prejudice or disclaimer of subject matter. Claims 2-6, 8-10, 13, 15, 18, 20-28, 31, 33, and 36 have been amended to define more clearly what Applicants regard as the invention. Claims 41-46 have been added to provide Applicants with a more complete scope of protection. Claims 41-46 are in independent form. Favorable reconsideration is requested.

Claim 33 has been amended to depend from new independent Claim 46. Withdrawal of the objection to Claim 33 is respectfully requested. The objection to Claim 38 has been rendered moot by the cancellation of that claim.

Claims 1-11, 13-15, 18-29, 31-33 and 36-40 were rejected under 35 U.S.C. § 101 as not being drawn to statutory subject matter. Independent Claims 1, 11, 19, 29, 37, 38, 39, and 40 have been cancelled, so Applicants will discuss the grounds of rejection in the context of new independent Claims 41-46.

New independent Claim 41 is directed to a computer-implemented method of interpreting a multiple-term query to retrieve items from a database. The method involves identifying a number of candidate multiple-term interpretations, determining a quantity of database items associated with each candidate multiple-term interpretation according to semantic approaches, scoring these candidate multiple-term interpretation, selecting at least one candidate multiple-term interpretation based on its overall score, and <u>retrieving at least one item from the database</u> using the at least one selected candidate multiple-term interpretation. Independent Claims 42-46 recite similar features.

The M.P.E.P. states the following with regard to meeting the requirements of 35 U.S.C. § 101:

> The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real

13

> world" value, as opposed to subject matter that represents nothing
> more than an idea or concept, or is simply a starting point for
> future investigation or research.

M.P.E.P. § 2106 (II)(A)(citing *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998)). The useful result in *State Street*, for example, was "a final share price momentarily fixed for recording and reporting purposes". *Id.* at 1601.

It is respectfully submitted that the claimed step of retrieving items from the database provides a "useful, concrete, and tangible result", because the retrieved items of information have "real world value", like the final share price in *State Street*. Accordingly, it is believed that independent Claims 41-46, and the claims depending therefrom, comply with 35 U.S.C. § 101. Applicants therefore respectfully request withdrawal of these rejections.

Claims 11, 13-15, 18, 29, 31-33, 36, 38, and 40 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

The rejections of Claims 11, 29, 38, and 40 have been rendered moot by the cancellation of those claims. Applicants will discuss these grounds of rejection in the context of new Claims 42, 44, and 46, which recite language similar to Claims 11, 38, and 29, respectively.

The M.P.E.P. provides the following guidance for determining whether the claims meet the written description requirement of Section 112, first paragraph:

> An objective standard for determining compliance with the written
> description requirement is, "does the description clearly allow
> persons of ordinary skill in the art to recognize that he or she
> invented what is claimed."

M.P.E.P. § 2163.02 (quoting *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989)).

The Examiner takes issue with the phrase "more items than a threshold". For example, Claim 42 recites: "prune the candidate single-term interpretations, wherein the first candidate single-term interpretation and the third candidate single-term interpretation have more associated

14

items than a threshold, and the second candidate single-term interpretation has fewer associated items than the threshold, by eliminating the second candidate single-term interpretation".

Applicants respectfully submit that this claim language is amply supported by the specification, for example, at page 13, line 8 – page 14, line 1:

> In some such embodiments, candidate single-term interpretations are eliminated if they have no or few associated items in the database. ... This reduced number of items can then be used to determine which of the k_n candidate single-tem interpretations yield a suitable number of results to merit inclusion in the candidate multiple-term interpretations. Accordingly, k_n intersection queries are generated to determine whether each candidate single-term interpretation matches a sufficient number of items. ... The intersection queries that return no results, or whose result set size is below some threshold, can be used to eliminate the corresponding candidate single-term interpretations from consideration.

It is clear from this portion of the specification that a candidate single-term interpretation whose corresponding result set falls <u>below</u> a threshold may be eliminated, i.e., pruned. It follows then, from simple logic, that single-term interpretations whose corresponding result sets are <u>above</u> the threshold would remain following such pruning. Because this simple logical relationship would be readily apparent to those of ordinary skill in the art, applicants respectfully submit that "the description clearly allow persons of ordinary skill in the art to recognize that [applicants] invented what is claimed."

Regarding Claims 13 and 31, the Examiner takes issue with the phrase "at least one item not associated with any of the first, second, or third single term interpretations". For example, Claim 13 recites "wherein the database includes at least one item that is not associated with any of the first, second or third single-term interpretations, wherein pruning the candidate single-term interpretations includes generating a second query that identifies a reduced set of all of the items in the database that are associated with any of the first, second or third candidate single-term interpretations ... ."

The claim language is also amply supported by the specification. For example, the specification states, at page 13, lines 17-18, that a query Q can be generated to include "all of the

items in the database that contain any of the candidate single-term interpretations." The specification, at page 13, line 23, refers to this result as a "reduced number of items." It follows then, logically, that there must be at least one item in the database that does not correspond to any of the candidate single-term interpretations under consideration. Moreover, it would have been clear to one of ordinary skill in the art from the specification as a whole that the database would naturally have more than the items associated with a typical query, i.e., associated with any of the first, second, or third single-term interpretations.

Claim 15, which has been rejected on similar grounds, recites "wherein the database includes at least one item that is not associated with any of the candidate single-term interpretations." The arguments presented above with respect to Claims 13 and 31 apply equally to Claim 15.

Accordingly, it is believed that all of the rejections under 35 U.S.C. § 112, first paragraph, have been obviated, and withdrawal of these rejections is therefore respectfully requested.

Claims 1-10, 19-28, 37, and 39 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,424,983 ("Schabes") in view of U.S. Patent No. 5,724,571 ("Woods"). Claims 11, 13-15, 18, 29, 31-33, 36, 38, and 40 were rejected as obvious over Schabes in view of U.S. Patent No. 5,671,404 ("Lizee") and further in view of Woods.

The rejections of Claims 1, 11, 19, 29, 37, 38, 39, and 40 have been rendered moot by the cancellation of those claims.

Generally speaking, the contextual score of a multiple-term interpretation is based at least in part on the number of matching database items associated with the interpretation.

For example, Claim 41 recites, *inter alia*, determining a contextual score for each candidate multiple-term interpretation based at least in part on the quantity of database items associated with each respective candidate multiple-term interpretation.

16

Similar rejections based Schabes in view of Woods were made by the Examiner in related co-pending application no. 10/317,337 ("the '337 application"). As the Examiner will recall, these rejections were withdrawn following a telephonic interview and the filing of an Amendment on August 6, 2007. The claims of the present application have been amended to include features similar to those relied upon in the '337 application to overcome these rejections. Pertinent portions of the remarks made in that Amendment are presented below.

Schabes relates to a spelling and grammar checking system which generates lists of alternative words for misspelled or grammatically-incorrect words. (Abstract). A spell-checking module compares each word in the input text to a dictionary database and characterizes a word as misspelled when it does not match any words in the dictionary database. The misspelled words are passed to a spelling suggestion module, which suggests corrections for the misspelled words based on inserting, deleting, replacing, and/or transposing characters in the misspelled word until correctly-spelled alternative words are obtained. (Col. 8, lines 43 – col. 9, line 2). A contextual ranking module ranks the alternative words "in accordance with one or more of a plurality of predetermined grammatical rules." (Col. 10, lines 3-9; col. 17, line 62 – col. 18, line 20; Fig. 13). These rules are implemented by a grammar finite state transducer (FST), which is constructed from two types of contextual grammatical rules: application rules and definition rules. Application rules indicate which rules must be applied, whereas definition rules define the rules themselves. (Col. 20, lines 51-56).

FIG. 25 of Schabes shows a multi-threaded, client-server spelling correction system used for database content retrieval. In this arrangement, parallel queries are input to the server (4) by multiple program threads (151, 152, 153). Each query is corrected using the spelling alterations and grammatical rules described above and then each corrected query is then used to retrieve information from database (169). (Col. 25, lines 29-52).

Schabes does not teach or suggest determining a contextual score for each candidate multiple-term interpretation based at least in part on a quantity of database items associated with each respective candidate multiple-term interpretation, as recited in Claim 41. Rather, as discussed above, the system described in Schabes employs predetermined grammatical rules to perform contextual ranking.

17

The other cited reference, Woods, relates to the generation of responses to queries in a document retrieval system. The method locates compact regions ("hit passages") within a document that match a query to some measurable degree, such as by including terms that match terms in the query to some extent, and ranks them by the measured degree of match. The ranking procedure, referred to as "relaxation ranking", ranks hit passages based upon the extent to which the requirement of an exact match with the query must be relaxed in order to obtain a correspondence between the submitted query and the retrieved hit passage. The relaxation mechanism takes into account various predefined dimensions (i.e., measures of closeness of matches), including: word order; word adjacency; inflected or derived forms of the query terms; and semantic or inferential distance of the located terms from the query terms. The ranking is weighted to a substantial extent based upon the physical distance separating the matching terms (compared with the distance between the corresponding terms in the query), as well as the "similarity" distance between the terms in the hit and the corresponding terms in the query. The located passages are ranked based upon scores generated by combining all of the weighted criteria according to a predetermined procedure. "Windows" into the documents (i.e., variably sized regions around the located hit passages) are presented to the user in an order according to the resulting ranking. (Col. 2, line 28 – col. 3, line 2).

Woods is concerned with ranking retrieved documents based on individual document scores and does not disclose scoring a multiple-term query. Therefore, it follows that Woods does not teach or suggest determining a contextual score for candidate multiple-term interpretations based at least in part on a quantity of database items associated with each respective candidate multiple-term interpretation, as recited in Claim 41. Accordingly, Woods does not remedy the shortcomings of Schabes, discussed above, with respect to these claimed features.

The Office Action states that Woods discloses "scoring hits in a database by considering term proximity in a hit document based on the query, thus producing a contextual score for each query based on a semantic approach." (Office Action at page 14). It is respectfully submitted that this characterization is inaccurate, because Woods does not teach or suggest any way of combining a set of scores obtained from individual database items to determine a score for the

18

query itself. Thus, the scores obtained in Woods are indicative of how well each individual retrieved item matches the query, rather than a reflection of the effectiveness of the query.

The Office Action further states that one of ordinary skill in the art would have been motivated to combine Schabes and Woods, thereby "determining a second derived score for each sentence (multiple term interpretation)." However, this hypothesis suffers from the inaccuracy discussed above. How would one of ordinary skill in the art determine a score for a sentence (multiple term interpretation) from the set of scores obtained from the retrieved documents?

For at least the above reasons, Claim 41 is believed to be patentable over the combination of Schabes and Woods.

Claims 42-46 recite similar features to those discussed above with respect to Claim 41 and therefore are also believed to be patentable over the combination of Schabes and Woods.

A review of the other references cited above has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

19

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Respectfully submitted,

Dated: October 31, 2007

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